REMARKS

The Examiner's comments together with the cited references have been carefully studied. Favorable reconsideration in view of the foregoing amendments and following remarks is respectfully requested.

Claims 1-20 were previously pending in the application. Claims 10-20 were withdrawn from consideration and are now canceled by the present amendments. Claims 1-9 have been rejected. New Claims 21-27 have been added. Therefore, Claims 1 to 9 and 21-27 are pending and presently active. Favorable reconsideration of the application in view of the following remarks is respectfully requested

Formal drawings are submitted herewith.

Relying on 35 U.S.C. §102(b), the Examiner rejected claims 1-9 as being anticipated by Stephenson. Applicants respectfully traverse the Examiner's rejection and request reconsideration.

Applicants respectfully submit that a rejection for lack of novelty under Section 102(b) requires that the invention must be identically disclosed or described in the reference. Applicants respectfully submit that important and material limitations of their invention as claimed are not disclosed in the reference.

Stephenson does disclose a polymer-dispersed liquid-crystal-based bi-stable reflective display in which a neutral appearance in the reflective state is obtained by combining the reflections of droplets of cholesteric liquid crystal material doped to give reflections either in the blue, green, and red part of the spectrum or in the blue and yellow part of the spectrum. Stephenson does mention that the polymer-dispersed liquid crystals have good off-axis reflectivity.

Importantly, however, Stephenson teaches that domains or droplets of liquid crystal in the light-modulating layer are smaller than the thickness of the layer so that multiple domains overlap, contrary to Applicants' invention. As stated by Stephenson, in column 6, lines 66-67: "The domains of liquid crystal in light modulating layer 11 are smaller than the layer thickness so the multiple domains overlap." This is readily apparent by viewing Figure 5 of Stephenson. Moreover, Stephenson does not mention anything about the effect of using mixtures of domains on the back-scattered

intensity in the focal conic state and, hence, does not achieve the advantageous results obtained by the present invention.

The present Applicants have unexpectedly found that the contrast of a display of the type disclosed and claimed is degraded if there is more than a substantial monolayer of cholesteric liquid crystal domains. As defined in the present specification, the term "substantial monolayer" means that, in a direction perpendicular to the plane of the display, there is no more than a single layer of domains sandwiched between the electrodes at most points of the display (or the imaging layer), preferably at 75 percent or more of the points (or area) of the display, most preferably at 90 percent or more of the points (or area) of the display. In other words, at most, only a minor portion (preferably less than 10 percent) of the points (or area) of the display has more than a single domain (two or more domains) between the electrodes in a direction perpendicular to the plane of the display, compared to the amount of points (or area) of the display at which there is only a single domain between the electrodes. The amount of material needed for a monolayer can be determined by calculation based on individual domain size, assuming a fully closed packed arrangement of domains, as explained in the present specification.

Furthermore, Example 1 in the present specification experimental shows the influence of laydown of the liquid-crystal material on backscattering from the focal conic state and contrast of the display. Referring to Fig. 5, the percent reflectance as a function of wavelength for three different laydowns of the LC material is shown. The full line, dashed line and dotted line correspond to coverages of 53.8, 129.2, and 161.5 cm^3/m^2 (5, 12 and 15 cm^3/ft^2) respectively. It is clear that the level of back scattering in the focal conic state increases significantly as the laydown is increased beyond monolayer coverage, as explained in Example 1. It is clear that the contrast ratio is much lower at laydowns greater than a monolayer of the LC droplets because of a significant increase in backscattering in the focal conic state.

Similarly, Example 2 in the present specification experimentally shows that the method of the invention allows broadband features to be obtained with little increase in backscattering in the focal conic state and, therefore, excellent contrast between the bright and dark states of the display.

Furthermore, the experimental evidence shows superior results when the different populations of domains reflect (i.e. have a peak reflectance or λ_{max}) in the green and red parts of the spectrum wherein the different parts of the spectrum are defined as follows: blue, below 480 nm; green, 480 to 560 nm; yellow, 560 to 590 nm; orange, 590 to 630 nm; red, 630 to 720 nm; and IR, above 720 nm. Thus, present claims 3, 5, 6, 7, and 21 to 27 are directed to a display of the present invention, in which the peak reflected wavelength of a first material in a first domain population is 450 to 560 nanometers and the peak reflected wavelength of a second material in a second domain population is 561 to 720 nanometers. More particularly, the imaging layer of these claims comprises a mixture of substantially just two different liquid crystal materials, in two different populations of domains, one of which reflects in the red spectrum. The advantage of such a mixture is shown in Fig. 7 which is a plot of the percent reflectance in the planar reflective states and the weakly scattering focal conic states. Fig. 7 shows comparatively increased broadband with little increase in backscattering for a display according to the present invention (Example 2) having a combination of green and red domains. In contrast, Stephenson discloses the combination of yellow and blue domains when limited to two types of domains, contrary to the present invention. Thus, Stephenson further teaches away from the present invention of claims 3, 5, 6, 7, and 21 to 27.

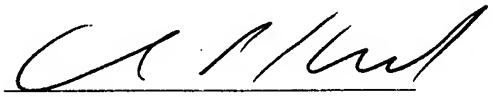
Applicants therefore respectfully request that the Examiner reconsider and withdraw the rejection of the claims under 35 U.S.C. 102(b).

Applicants have reviewed the prior art made of record and believe that singly or in any suitable combination, they do not render Applicants' claimed invention unpatentable.

In view of the foregoing remarks and amendment, the claims are now believed allowable and such favorable action is courteously solicited.

Should the Examiner consider that additional amendments are necessary to place the application in condition for allowance, the favor is requested of a telephone call to the undersigned counsel for the purpose of discussing such amendments.

Respectfully submitted,



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Amendments to the Drawings:

Two sets (4 sheets each) of formal drawings are submitted herewith to replace the informal drawings of record. Approval by the Examiner is respectfully requested.